I. AMENDMENTS

IN THE CLAIMS

Cancel claims 8 and 60 without prejudice to renewal.

Please enter the amendments to claims 5, 7, 59, and 61, as shown below.

Please enter new claims 78-80, as shown below.

1. (Withdrawn) A glycosyl sulfotransferase present in other than its natural environment, wherein said glycosyl sulfotransferase is selected from the group consisting of GST-4α, GST-4β, and GST-6.

2. (Withdrawn) The glycosyl sulfotransferase according to Claim 1, wherein said glycosyl sulfotransferase is a human glycosyl sulfotransferase.

3. (Withdrawn) The glycosyl sulfotransferase according to Claim 1, wherein said glycosyl sulfotransferase has an amino acid sequence substantially identical to the sequence of SEQ ID NOS:07, 8, 9, 13, or 15.

4. (Withdrawn) A fragment of the glycosyl sulfotransferase according to Claim 1.

5. (Currently amended) A nucleic acid present in other than its natural environment, wherein said nucleic acid comprises a nucleotide sequence encoding a polypeptide, wherein said polypeptide comprises an amino acid sequence that is at least 85% identical to the amino acid sequence set forth in SEQ ID NO:08, and wherein said polypeptide has sulfotransferase activity ~~catalyzes the transfer of a sulfate group from a donor to a selectin ligand~~.

6. (Canceled)

7. (Currently amended) A fragment of the nucleic acid according to Claim 5, wherein said fragment encodes a polypeptide that has sulfotransferase activity ~~catalyzes the transfer of a sulfate group from a donor to a selectin ligand~~.

8. (Canceled)

9. (Previously presented) An expression cassette comprising a transcriptional initiation region functional in an expression host, a nucleic acid comprising a nucleotide sequence according to Claim 5, claim 65, claim 69, or claim 7 under the transcriptional regulation of said transcriptional initiation region, and a transcriptional termination region functional in said expression host.

10. (Original) A cell comprising an expression cassette according to Claim 9 as part of an extrachromosomal element or integrated into the genome of a host cell as a result of introduction of said expression cassette into said host cell.

11. (Original) The cellular progeny of the host cell according to Claim 10.

12. (Previously presented) A method of producing a glycosyl sulfotransferase polypeptide, said method comprising:

growing a cell according to Claim 10, whereby said glycosyl sulfotransferase polypeptide is expressed; and

isolating said glycosyl sulfotransferase polypeptide substantially free of other proteins.

13. (Withdrawn) A monoclonal antibody binding specifically to a glycosyl sulfotransferase according to Claim 1.

14. (Withdrawn) The antibody according to Claim 13, wherein said antibody inhibits sulfation activity of said glycosyl sulfotransferase.

15. (Withdrawn) The monoclonal antibody according to Claim 13, wherein said antibody is a humanized antibody.

16. (Withdrawn) A method for inhibiting a binding event between a selectin and a selectin ligand, said method comprising:

contacting said selectin with a non-sulfated selectin ligand, glycosyl sulfotransferase according to Claim 1 and an agent that inhibits the sulfation activity of said glycosyl sulfotransferase.

17. (Withdrawn) The method according to Claim 16, wherein said agent is a small molecule.

18. (Withdrawn) A method of inhibiting a selectin mediated binding event in a mammalian host, said method comprising:

administering to said host an effective amount of a pharmaceutical composition comprising an active agent that modulates the sulfation activity of a glycosylsulfotransferase according to Claim 1.

19. (Withdrawn) The method according to Claim 18, wherein said active agent inhibits the sulfation of activity of said glycosyl sulfotransferase.

20. (Withdrawn) The method according to Claim 19, wherein said agent is a small molecule.

21. (Withdrawn) The method according to Claim 19, wherein said agent is an antibody.

22. (Withdrawn) The method according to Claim 19, wherein said active agent modulates the expression of said sulfotransferase.

23. (Withdrawn) A method of modulating a symptom in a mammalian host of a disease condition associated with a selectin mediated binding event, said method comprising:

administering to said host a pharmaceutical composition comprising an effective amount of an active agent that modulates the sulfation activity of a glycosylsulfotransferase according to Claim 1.

24. (Withdrawn) The method according to Claim 23, wherein said symptom is inflammation.

25. (Withdrawn) A method of diagnosing a disease state in a host related to the abnormal levels of a glycosyl sulfotransferase according to Claim 1, said method comprising:

determining the amount of an analyte in a sample from said host, wherein said analyte is selected from the group consisting of glycosyl sulfotransferase according to Claim 1 or a nucleic acid related thereto; and

comparing the amount of said analyte in said host sample to a control value.

26. (Withdrawn) The method according to Claim 25, wherein said determining is quantitative.

27. (Withdrawn) The method according to Claim 25, wherein said determining is qualitative.

28. (Withdrawn) A method of determining whether an agent is capable of modulating the activity of glycosylsulfotransferase according to Claim 1, said method comprising:

contacting a glycosylsulfotransferase according to Claim 1 with a sulfate source, an acceptor compound and said agent; and

determining the affect of said agent on said sulfotransferase activity.

29. (Withdrawn) A non-human transgenic animal model for gene function, wherein said transgenic animal comprises an introduced alteration in a gene encoding a glycosylsulfotransferase according to Claim 1.

30. (Withdrawn) A nucleic acid present in other than its natural environment, wherein said nucleic acid comprises a nucleotide sequence encoding a glycosyl sulfotransferase-4β (GST-4β) polypeptide, wherein said GST-4β polypeptide comprises an amino acid sequence having at least 85% amino acid sequence identity to the amino acid sequence set forth in SEQ ID NO:13.

31. (Withdrawn) A nucleic acid according to claim 30, wherein said nucleic acid comprises a nucleic acid sequence that is substantially identical to or the same as the nucleotide sequence set forth in SEQ ID NOS:11, 12, or 21.

32. (Withdrawn) A nucleic acid according to claim 30, wherein said polypeptide comprises an amino acid sequence that is substantially identical to or the same as the amino acid sequence set forth in SEQ ID NO:13.

33. (Withdrawn) A fragment of the nucleic acid according to claim 30, wherein said fragment catalyzes the transfer of a sulfate group from a donor to a selectin ligand.

34. (Withdrawn) An isolated nucleic acid that hybridizes at 50°C or higher in a solution of 15 mM NaCl and 1.5 mM sodium citrate to the nucleic acid according to claim 31 or a complementary sequence thereof, wherein said nucleic acid encodes a glycosyl sulfotransferase.

35. (Withdrawn) An expression cassette comprising a transcriptional initiation region functional in an expression host, a nucleic acid comprising the nucleic acid according to claim 30 or claim 33 under the transcriptional regulation of said transcriptional initiation region, and a transcriptional termination region functional in said expression host.

36. (Withdrawn) A cell comprising an expression cassette according to claim 35 as part of an extrachromosomal element or integrated into the genome of a host cell as a result of introduction of said expression cassette into said host cell.

37. (Withdrawn) The cellular progeny of the host cell according to claim 36.

38. (Withdrawn) A method of producing a glycosyl sulfotransferase, said method comprising:

growing a cell according to claim 36, whereby said glycosyl sulfotransferase is expressed; and

isolating said glycosyl sulfotransferase substantially free of other proteins.

39. (Withdrawn) A nucleic acid present in other than its natural environment, wherein said nucleic acid comprises a nucleotide sequence encoding a glycosyl sulfotransferase-6 (GST-6) polypeptide, wherein said GST-6 polypeptide comprises an amino acid sequence that has at least 85% amino acid sequence identity to the amino acid sequence set forth in SEQ ID NO:15.

40. (Withdrawn) A nucleic acid according to claim 39, wherein said nucleic acid comprises a nucleic acid sequence that is substantially identical to or the same as the nucleotide sequence of SEQ ID NOS:14, 16, 18, 19, 20, 22, or 23.

41. (Withdrawn) A nucleic acid according to claim 39, wherein said polypeptide comprises an amino acid sequence that is substantially identical to or the same as the amino acid sequence set forth in SEQ ID NO:15.

42. (Withdrawn) A fragment of the nucleic acid according to claim 39, wherein said fragment catalyzes the transfer of a sulfate group from a donor to a selectin ligand.

43. (Withdrawn) The fragment according to claim 42, wherein said fragment encodes amino acids 851 to 1222 of SEQ ID NO:15.

44. (Withdrawn) An isolated nucleic acid that hybridizes at 50°C or higher in a solution of 15 mM NaCl and 1.5 mM sodium citrate to a nucleic acid of SEQ ID NO:22 or a complementary sequence of SEQ ID NO:22, wherein said nucleic acid encodes a glycosyl sulfotransferase.

45. (Withdrawn) An expression cassette comprising a transcriptional initiation region functional in an expression host, a nucleic acid comprising the nucleic acid according to claim 39 or claim 42 under the transcriptional regulation of said transcriptional initiation region, and a transcriptional termination region functional in said expression host.

46. (Withdrawn) A cell comprising an expression cassette according to claim 45 as part of an extrachromosomal element or integrated into the genome of a host cell as a result of introduction of said expression cassette into said host cell.

47. (Withdrawn) The cellular progeny of the host cell according to claim 46.

48. (Withdrawn) A method of producing a glycosyl sulfotransferase, said method comprising:

growing a cell according to claim 46, whereby said glycosyl sulfotransferase is expressed; and

isolating said glycosyl sulfotransferase substantially free of other proteins.

49. (Withdrawn) An isolated nucleic that hybridizes at 50°C or higher in a solution of 15 mM NaCl and 1.5 mM sodium citrate to the nucleic acid according to claim 6 or a complementary sequence thereof, wherein said nucleic acid detects GST-4α polynucleotides.

50. (Withdrawn) The isolated nucleic acid of claim 49, wherein said nucleic acid is from about 20 to about 1000 nucleotides in length.

51. (Withdrawn) An isolated nucleic acid that hybridizes at 50°C or higher in a solution of 15 mM NaCl and 1.5 mM sodium citrate to the nucleic acid according to claim 31 or a complementary sequence thereof, wherein said nucleic acid detects GST-4β polynucleotides.

52. (Withdrawn) The isolated nucleic acid of claim 51, wherein said nucleic acid is from about 20 to about 1000 nucleotides in length.

53. (Withdrawn) An isolated nucleic acid that hybridizes at 50°C or higher in a solution of 15 mM NaCl and 1.5 mM sodium citrate to the nucleic acid according to claim 40 or a complementary sequence thereof.

54. (Withdrawn) The isolated nucleic acid of claim 53, wherein said nucleic acid is from about 20 to about 3500 nucleotides in length.

55. (Withdrawn) The nucleic acid of claim 5, wherein said nucleic acid encodes a GST-4α polypeptide comprising an amino acid sequence that is at least 90% identical to SEQ ID NO:08.

56. (Withdrawn) The nucleic acid of claim 30, wherein said nucleic acid encodes a GST-4β polypeptide comprising an amino acid sequence that is at least 90% identical to SEQ ID NO:13.

57. (Withdrawn) The nucleic acid of claim 39, wherein said nucleic acid encodes a GST-6

polypeptide comprising an amino acid sequence that is at least 90% identical to SEQ ID NO:15.

58. (Canceled)

59. (Currently amended) The nucleic acid of claim 5, wherein the polypeptide catalyzes the transfer of a sulfate group from a donor to a selectin ligand ~~wherein the selectin ligand is an E-selectin ligand~~.

60. (Canceled)

61. (Currently amended) The nucleic acid of claim 59 [[5]], wherein the selectin ligand is an L-selectin ligand.

62. (Previously presented) The nucleic acid of claim 61, wherein the L-selectin ligand is selected from GlyCAM-1, CD34, MAdCAM-1, Sgp200, and podocalyxin.

63. (Previously presented) The nucleic acid of claim 5, wherein the polypeptide comprises an amino acid sequence that is at least 90% identical to the amino acid sequence set forth in SEQ ID NO:08.

64. (Previously presented) The nucleic acid of claim 5, wherein the polypeptide comprises the amino acid sequence set forth in SEQ ID NO:08.

65. (Previously presented) The nucleic acid of claim 5, wherein said nucleic acid comprises a nucleic acid sequence that is at least 85% identical to the nucleotide sequence of SEQ ID NOs: 03 or 04.

66. (Previously presented) The nucleic acid of claim 5, wherein said nucleic acid comprises a nucleic acid sequence that is at least 90% identical to the nucleotide sequence of SEQ ID NOs: 03 or 04.

67. (Previously presented) The nucleic acid of claim 5, wherein said nucleic acid comprises a nucleic acid having the nucleotide sequence set forth in any one of SEQ ID NOs: 03 and 04.

68. (Previously presented) A composition comprising the nucleic acid of any one of claims 5, 7, 63, 69, and 66.

69. (Previously presented) A nucleic acid present in other than its natural environment, wherein said nucleic acid comprises a nucleotide sequence encoding a fragment of a polypeptide that comprises an amino acid sequence that is at least 85% identical to the amino acid sequence set forth in SEQ ID NO:08, wherein said fragment comprises a functional domain selected from a donor binding site and an acceptor binding site, wherein said functional domain is at least 10 amino acids in length.

70. (Previously presented) A nucleic acid according to claim 69, wherein said polypeptide comprises an amino acid sequence that is at least 90% identical to the amino acid sequence set forth in SEQ ID NO:08.

71. (Previously presented) The nucleic acid of claim 69, wherein the polypeptide comprises the amino acid sequence set forth in SEQ ID NO:08.

72. (Previously presented) The nucleic acid of claim 69, wherein said nucleic acid comprises a nucleic acid sequence that is at least 85% identical to the nucleotide sequence of SEQ ID NOs: 03 or 04.

73. (Previously presented) The nucleic acid of claim 69, wherein said nucleic acid comprises a nucleic acid sequence that is at least 90% identical to the nucleotide sequence of SEQ ID NOs: 03 or 04.

74. (Previously presented) The nucleic acid of claim 69, wherein said nucleic acid comprises a nucleic acid having the nucleotide sequence set forth in any one of SEQ ID NOs: 03 and 04.

75. (Previously presented) The nucleic acid of claim 69, wherein said fragment comprises a donor binding site.

76. (Previously presented) The nucleic acid of claim 69, wherein said fragment comprises an acceptor binding site.

77. (Previously presented) The nucleic acid of claim 69, wherein said functional domain is at least 50 amino acids in length.

78. (New) The nucleic acid of claim 7, wherein the polypeptide catalyzes the transfer of a sulfate group from a donor to a selectin ligand.

79. (New) The nucleic acid of claim 78, wherein the selectin ligand is an L-selectin ligand.

80. (New) The nucleic acid of claim 79, wherein the L-selectin ligand is selected from GlyCAM-1, CD34, MAdCAM-1, Sgp200, and podocalyxin.